THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION
BUREAU OF EDUCATION

DOMESTIC SCIENCE

A GUIDE TO PRACTICAL INSTRUCTION IN HOUSEKEEPING, SEWING, COOKING, AND LAUNDERING IN GRADES THREE AND FOUR OF THE PHILIPPINE PUBLIC SCHOOLS

MANILA
BUREAU OF PRINTING
1908

74045–1

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PREFACE.

Education in its broad meaning is a preparation to meet and perform the duties of life. The study of arithmetic, reading, and writing, and other academic subjects are very necessary, but along with these the application of industrial instruction should have a very prominent part in a person's educational career.

The great majority of young people who enter the public school, by reason of circumstances, leave school on the completion of the primary course. These boys and girls on completing the fourth grade should have not only a fair knowledge of book subjects, but they should be able to apply their knowledge. They should be able to do something and do it well.

The girls should know something about good housekeeping, sewing, cooking, and domestic economy. Without a working knowledge of these subjects they are not prepared to take charge of a home in which happiness should dominate and from which good citizenship should emanate.

To this end this outline of domestic science is submitted. It is prepared for girls of the third and fourth grades; it may also be studied to advantage, for the present at least, by some of the higher grades. It is not expected that all of the contents will be taught in these grades.

Much of the work given herein may be studied by boys as well as girls. Boys as well as girls should know how to sew and to cook. As much of the cooking in this country is done by the men, a knowledge of the principles of cooking learned in youth will not come amiss in manhood.

From instructions given in domestic science the girls are supposed to derive the greatest benefit, for the reason that they are to become the *homemakers* and *homekeepers*. The girls who acquire a working knowledge of the principles of domestic economy will be prepared to become better wives with higher ideals and nobler purposes, better mothers with a broader comprehension of the duties and responsibilities of life, and will be able to contribute more to the happiness of the home and give to their country a higher degree of citizenship than though they were ignorant of these principles.

DOMESTIC SCIENCE FOR THIRD AND FOURTH GRADES.

INTRODUCTION.

Let not the following facts be *given* to the pupils, but *drawn* as conclusions from their reasoning in class work.

Home.—The *home* is the dwelling place of the *family.*

Family.—The *family* we think of as made up of individuals related to each other by the strongest ties of nature.

In the ideal home we see the *father,* who is the head and main support of the family; the *mother,* who is the housekeeper and care-taker of the family and the maker of the social position of the family in accordance with her means; the *children,* brothers and sisters, each a comfort and a help to their parents and to each other.

Besides the members of the immediate family we find *guests* who come in to enjoy the hospitality of the home for a time and to give pleasure to the family. These guests should be received with cordial hospitality by the members of the family. *Servants* also should be considerately treated since they do much for the comfort of the family.

A kindly consideration, one for another, and a general spirit of helpfulness will be apparent in the ideal home. The members of the family will be strong, wholesome, and helpful. These characteristics will go with them as they go out of the home, so that out of the healthful, happy home we may expect to come good people who will make good citizens. Good citizens make good government. Thus we see that from good homes we may expect the people to grow into a great nation.

On the other hand, we see homes of the ignorant, careless, lazy, or vicious, and we can not reasonably expect that the people coming from such homes will be vigorous, progressive, or prosperous. Their national life then must show lack of vigor, progress, and prosperity.

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The conclusion we draw is that all patriotic home-loving people will try to make their own home life better. This will have to be done by instructing the mothers; for while each member of the well-regulated home must contribute toward the comfort and happiness, yet to the mother belongs largely the making of the home what it should be. The girls in the schools to-day will be the mothers of the next generation, so to them the instruction in domestic science is to be offered.

DOMESTIC SCIENCE.

Domestic science treats of the proper care of the home. The requisites for a good home are: Coöperation, Order, Cleanliness, Good Food.

Coöperation.—This means the working together of all members of the family, according to their capacities, to the single end, that of making the home the best possible with the means at hand. One person alone can not make an ideal home for a number of people. If the father wishes to contribute the most possible toward health and happiness in his home, but the mother and chidren are careless and negligent, the home can not be ideal, nor can the ideal home be accomplished by the mother alone when the father and children take no interest in its welfare.

A short discussion on the part of the teacher of the different rooms in the house and of their uses, their furniture and furnishings, would be appropriate here.

Order.—In a well-regulated household we find "a place for everything and everything in its place." We do not expect to find the piano in the kitchen nor the kitchen utensils in the parlor. We find certain duties assigned to certain members of the family and each member doing his or her duties, without question or comment, as a matter of habit. In this way the sum of the work may be accomplished without hardship to anyone.

Cleanliness.—"Cleanliness is next to Godliness." Two main points are to be brought out under this head: (*a*) that cleanliness in house, person, and clothing leads to increased self-respect, which in turn leads to better behavior in the individual, which reacts for the benefit of the

community; (*b*) that cleanliness also makes for health. Under this second head a study of hygiene is necessary. *Hygiene* is the science which treats of the laws of health. This science is divided into two parts, *domestic* and *personal* hygiene. *Domestic hygiene* is the study of cleanliness in the home and all the surroundings of the home. *Personal hygiene* is the science which treats of the proper care of our bodies.

Good food.—The necessity of good and proper food may be illustrated by noticing the likeness between the body and an engine, in that both must be supplied with suitable fuel and both must be repaired when any part is worn-out or broken.

From these truths the subject naturally divides itself into four divisions:

1. HOUSEKEEPING, including *hygiene, domestic* and *personal.*
2. LAUNDRY WORK.
3. SEWING.
4. COOKING.

QUESTIONS.

Define home and family.
Who are the members of the family? Give one duty of each.
Show how the home life will affect the life of the nation.
How may all patriotic people work to improve their national life?
Name four characteristics of the members of an ideal home.
To whom is instruction in domestic science to be offered? Why?
Define *domestic science.*
What are the requisites of a good home?
Define *hygiene.*
Name the subjects considered in the study of domestic science.

THIRD GRADE.

HOUSEKEEPING.

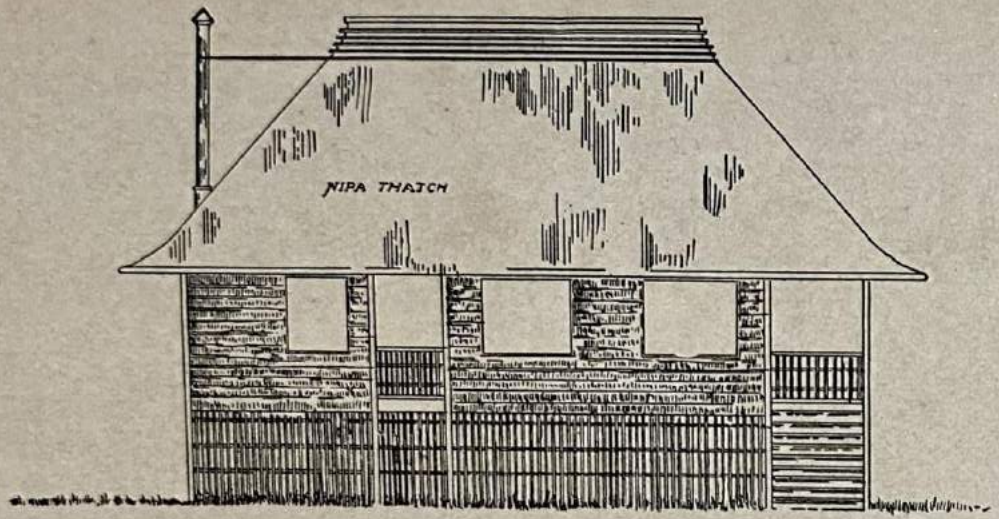
Many people think that housekeeping may be done by anyone and that such work requires no skill or intelligence. This is a wrong idea. It must be supplanted by another. The truth is, that good housekeeping requires more skill and training than many other occupations. The health, comfort, and morals of the family all depend on good housekeeping. The housekeeper needs to be the best educated, the most skillful, the most intelligent member of the household.

DOMESTIC HYGIENE.

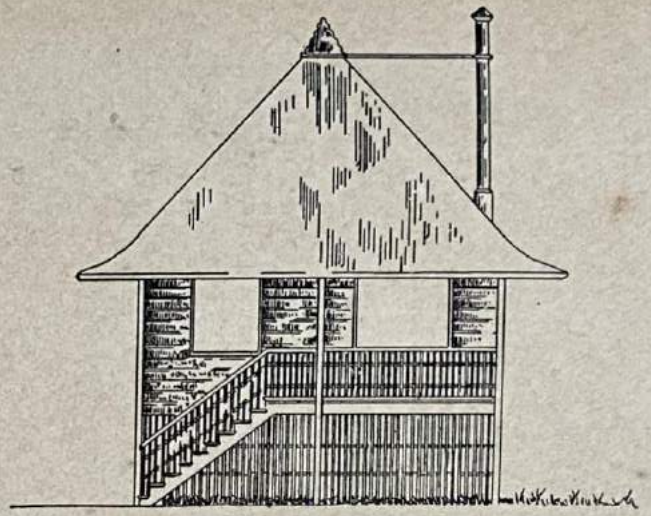
War on dust.—Even dusting and sweeping have a right way and a wrong way of being accomplished. The servant, with her mind on other things, flips her broom here and there, and stirs up much dust, but takes little of it out of the room. The housekeeper, to whose interest it is to get the dust out of the room, sweeps with long, even strokes, stirring up little dust, brushing out corners and off moldings or baseboards. Finally she gathers the dust into the dustpan and removes it to some place where it will trouble no more.

After the sweeping, the dusting will be done with a piece of soft cloth. Old linen is good for this purpose. With this the woodwork and furniture is rubbed, the idea being to transfer the dust from the furniture to the cloth and not to allow it to scatter through the air only to settle upon the furniture again. Dust contains living bacteria which will grow and multiply in any warm moist place. For this reason one chief business of the housekeeper is to carry on a constant warfare on dust. A soft cloth made a little damp when rubbed over window sills or woodwork not polished will remove the dust. A few drops of kerosene or turpentine on a soft cloth may be used to clean polished surfaces.

Instruction in sweeping and dusting should be accompanied by a demonstration of the right way and the wrong way of doing these things,



SIDE ELEVATION.



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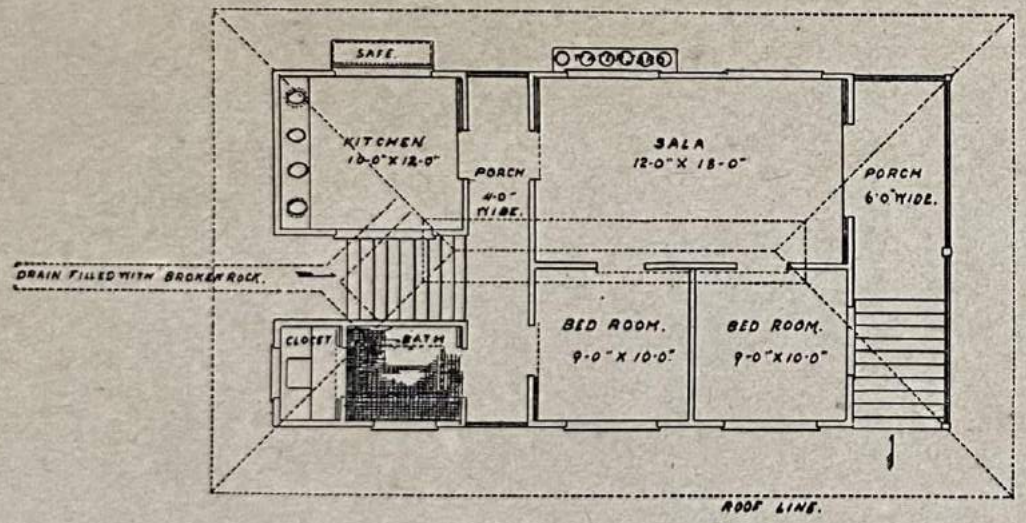
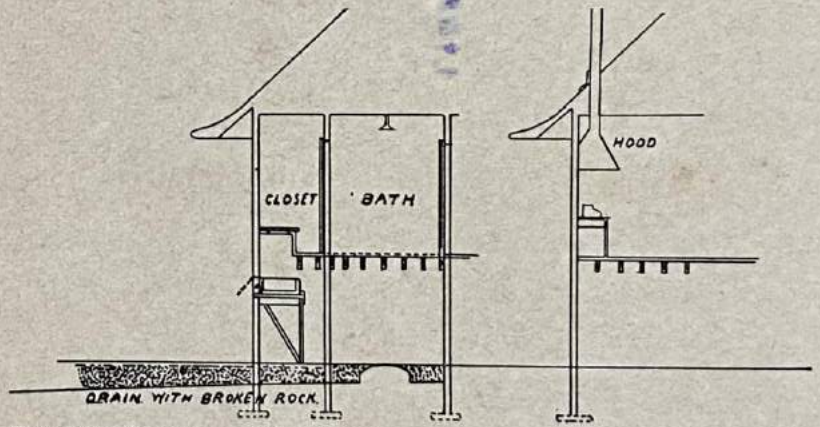


PLAN.



Detail of dry-earth closet and bath with drain.

Detail of kitchen stove.

SECTION.

PLAN OF MODEL FILIPINO HOUSE TO TEACH HOUSEKEEPING.

with observations on the results. Practice should be given the pupils, until each pupil may be able to sweep and dust a room as an intelligent person would do and not as the work would be done by an ignorant servant.

Order.—In this connection the pupils may be taught the necessity of keeping their belongings in order, and neatness and cleanliness with regard to all things in and about the house.

All this instruction will include the first principles of sanitation.

PERSONAL HYGIENE.

Under personal hygiene the first thing to be taken up with the pupils should be the necessity of forming regular habits along lines governing their daily actions.

Habits of some kind will be formed. The pupil must see to it that good habits are formed. Let her be encouraged to regulate her daily life according to a certain programme, arranging the time for sleeping, bathing, eating, study, and recreation in such a way as to get the most good out of each one. The hours for sleep should be regular and sufficient for rest.

The bathing should be done at regular intervals often enough to keep the skin in good, vigorous condition. The pupils should be taught that a short washing followed by a rub with a rough, dry towel will be better for the body than a long soaking. The skin needs exercise. Impurities are constantly being brought to the surface of the body by perspiration, and they are left there when the moisture evaporates. This makes good soil for the growth of bacteria. It also clogs the pores of the skin and forces the impurities which should be cast away through the skin to be taken care of in some other way. These impurities when they can not escape in the usual way will be sent back into the body and will act as a poison to the tissues.

The fact should be emphasized that frequent baths are necessary. The hair, teeth, and nails should receive careful attention. A good habit to form is the habit of washing the hands often and always before meals.

The pupils should be taught that they will be healthier, enjoy life more, and accomplish more work with greater ease if their meals are regular in quality, quantity, and time. The quality of the food should always be good and it should always be well cooked. This fact can not be too strongly emphasized. The quantity should be enough to yield the necessary heat and energy to the body, and repair and build up the worn-out tissues. As to time, three meals a day about six hours apart is a good arrangement. The family should arrange to sit down at a table together to the meal. While eating they should talk about pleasant things and try to make the mealtime the most enjoyable time of the day.

The recreation, exercise, and study periods should be observed regularly and faithfully.

QUESTIONS.

Why should the housekeeper be an intelligent person?
What is the object in dusting and sweeping?
What is one of the chief duties of the housekeeper? Why?
How may polished surfaces be cleaned?
Define personal hygiene.
Why are frequent baths necessary?
What rule should be followed with regard to the time of meals?

LAUNDERING.

A clean soft cloth should be used for washing the dishes and a clean towel for wiping them. These, to be kept clean, should be washed with soap and rinsed thoroughly every time after they are used. They should be boiled frequently. These cloths should not be used for any purpose except that of washing or wiping dishes. Another wash cloth and towel should be provided for the hands or any part of the body.

These cloths should be washed in warm water and rubbed well between the hands or on the board. They should then be well soaped, put in a boiler of cold water, put on the stove, brought to a boil, and boiled for a short time. They should then be washed again and rinsed

thoroughly in clean cold water and hung on a line to dry. They should not be dried on the grass unless they are to be bleached. In that case, they must be boiled again before they are used.

The dust cloth also should be washed frequently.

QUESTIONS.

Give two rules for the treatment of the dish towel and dish cloth.

Describe the process of washing the dish cloths and dust cloths.

SEWING.

Drill exercises, in holding and using the thimble, needle, scissors, etc.:

Exercises: I, basting; II, stitching; III, backstitching; IV, running; V, oversewing; VI, hemming; VII, overcasting; VIII, cross-stitching; IX, buttonhole stitch; X, darning; XI, patching and matching stripes; XII, piecing and matching stripes; XIII, French seam; XIV, putting on band.

In addition to these exercises, each pupil in the third grade should make for herself a sewing bag, a needlebook, a holder, also hem a dish towel and a dish cloth, and make an apron having a ruffle, thus applying: Gathering and stroking, tucking, putting on band, putting on ruffle under tuck

REMARKS.—Material for this work may be found in any market.

These exercises are valuable in teaching the elementary principles of sewing, such as stitches, the handling of the needle, scissors, and thimble, etc. These can be taught at a very small outlay, as very little material is to be used in these exercises.

DRILL EXERCISES.

These exercises do not belong to any one lesson in particular, but should be used to some extent in each lesson.

Drill in position—

Of the body.

Of the hand in holding—

(*a*) The thimble.

(*b*) The needle.

(*c*) The scissors.

(*d*) The thread.

Drill—

In moving the needle for sewing.

In threading the needle.

In making a knot.

In practice with scissors—

(*a*) Cutting from the child across the table.

(*b*) Cutting from right to left along the table.

(*c*) Cutting along lines of ruled paper.

(*d*) Cutting according to measure, in paper; in cloth; on straight of the goods; on the bias.

Measuring with tapeline or cut measure.

The *object* of the needlework of the third grade is to teach the plain stitches and their application on some very necessary pieces of work.

The *position* of the body while working is very important. A cramped position tires the pupil and may become very bad for the health. The chair should be low enough so that the feet may rest on the floor. The pupil should sit erect with shoulders well back. The arms should not rest on the table. Children should not be kept for a long time continuously on work that is likely to prove trying to the eyes.

The manner of *holding* the work should receive the close attention of the teacher. There is a tendency among pupils to push the needle away from the worker especially in oversewing and hemming. This is a slow way of sewing. Rapidity should be one aim as well as neatness.

The youngest pupils are given canvas for the first set of exercises because the web is so loose that it is easy for them to judge concerning size and direction of stitches. It would be well for the pupils to make two sets of exercises, the first on canvas, the second on coarse unbleached cotton. These exercises on canvas can be made perfect, and the pupils should be required to do them over and over again until they can do them right. The form and size of the piece of cloth and the colors of the thread may be changed to give variety, but the stitches must be practiced until they can be done well.

When the cloth is brought from home by the pupils, the different kinds of cloth require that different directions be given to each pupil

by the teacher. This causes confusion and makes it impossible to teach a number of pupils at one time. For this reason the material for these exercises should be furnished by the school or municipality. The expense is very little. The materials may be bought in any market. If canvas can not be bought in the market, a piece of coarse, evenly woven hemp cloth will make a good substitute.

It is difficult to keep the pupils of the class together in this exercise work, as some of the girls will work faster than others. Let each pupil have ready one piece of work, the cross-stitch sampler, or a napkin or towel to hem, so that, if she finish her excercise before the others, she need not waste her time while waiting for the slower ones to finish. All the pupils in the class should receive the instructions on a new exercise at the same time. This is a saving of the teacher's energy, and it also serves to give the pupils a lesson in attention.

The purpose of the drill exercises suggested at the beginning of these lessons is to secure prompt obedience to directions and to train the muscles for later work.

The pupils must be trained to take some pride in keeping their work clean and smooth. The hands must be clean. It would be well if each pupil would put on a clean apron before beginning work. Then when the work is put away, care should be taken to fold it carefully and to lay it where it will not become wrinkled.

There are a few rules which should be strictly observed from the very first day:

(1) Never bite the thread. It injures the teeth and soils the work.
(2) Never use a knot where it can not be hidden completely.
(3) Never let the scissors become too dull to cut well.
(4) Never use a bent, rusty, or too large needle.
(5) Never hurry in the preparation of work.
(6) Never waste material.

When each exercise is finished, it should be mounted either in a book arranged for the purpose or on a piece of stiff paper. This keeps the exercise from becoming wrinkled and preserves it for future reference.

EQUIPMENT.

(For a class of sixteen.)

Eight pairs of scissors.
Two bunches (12 skeins each) red embroidery thread.
Five yards canvas.
Five yards unbleached cotton.
Five yards any striped cotton print or gingham.
Two dozen papers needles, No. 6.
Two spools white cotton thread, No. 60.
The materials for piecework, which will be described later.

QUESTIONS.

What is the object of third grade needlework?
Describe the proper position of the body while sewing.
Name two aims in the practice of needlework.
Why should canvas be used in the first exercise?
What are the purposes of the drill exercises?
Why is it well for the material in these exercises to be uniform?

EXERCISES IN SEWING FOR THIRD GRADE.

Exercise I—Basting.

Material required for each pupil: One strip of canvas or coarse unbleached cotton cloth 11 centimeters by 7 centimeters; red cotton embroidery thread, No. 20; needle, No. 6.

(The following directions are given for work on canvas. If unbleached cotton is used, read, in each case, double the number of threads as given in the directions. With small pupils these exercises may profitably be done twice, first in canvas and the second time in unbleached cotton. The exercise may be varied by using threads of different colors.)

Basting is sewing with a long stitch for the purpose of holding together two or more pieces of cloth until they can be sewed securely. To make basting on a strip of canvas, begin at the right-hand edge, the first line of basting 1 centimeter from the top edge of the piece. For

even basting pass the needle first under four threads, then over four threads until a line is made across the piece. Fasten the thread by taking two stitches in one place. In the second line of basting, begin at the middle of the right-hand edge of the piece, pass the needle under four threads then over eight threads and repeat across the piece, fastening as before. At the right-hand edge and 1 centimeter from the lower edge of the piece make a third line of basting by putting the needle under four threads, then over sixteen threads, and repeat across the piece, fastening as before.

Exercise II—Stitching.

Material.—The same as in Exercise I.

Stitching is sewing together securely two or more pieces of cloth so that the line of sewing on the upper side of the seam as it is being sewed looks like machine stitching.

To fasten the thread for stitching or backstitching, turn the upper right-hand corner of the piece over the first finger of the left hand. Take up with the needle two threads on the wrong side. Draw through all the thread except 1 centimeter, which is held down with the left thumb. Take a stitch over it to prevent its loosening and drawing through to the right side. Put the needle in two threads nearer the edge in a horizontal line. Take up four threads horizontally on the needle and bring the thread through on the right side. This will be two threads in advance of the first position. Repeat across the piece and fasten as in basting.

Exercise III—Backstitching.

Material.—The same as in Exercise I.

Backstitching is sewing together securely two or more pieces of cloth so that the line of sewing on the upper side as it is being sewed will look like running stitches.

In backstitching take up six threads, then go back and take up the last two of these and four in advance. Repeat across the piece, fastening as before.

Exercise IV—Running.

Materials.—The same as in Exercise I.

Running stitches are made by taking up two threads of the canvas, then passing the needle over two threads, then taking up two more, passing over the next two, and so on. It is like even basting except that the stitches are short. The stitches on the right side and on the wrong side are equal.

Exercise V—Oversewing.

Materials.—The same as in Exercise I.

One and one-half centimeters from the top edge of the piece, crease across the piece so that two threads will lie on the edge. To fasten the thread and make the stitch in oversewing, put the needle in from behind through two thicknesses of the canvas, two threads from the right-hand edge, and take up four threads in each stitch. Then pull all but 1 centimeter of the thread through. Lay this 1 centimeter of the thread over the top of the seam and sew over it by putting the needle up from behind and two threads in advance of its first position. Pull the thread through until the stitch is tight. Repeat this over the length of the seam. In oversewing, the stitches slant from right to left over the top of the seam. The oversewed seam may be strongly finished by sewing back over the last four or five stitches. Make two lines of oversewing across the piece.

Exercise VI—Hemming.

Materials.—The same as in Exercise I.

On the lower edge of the canvas turn up four threads for the first turning of the hem. Turn again, making a hem 1 centimeter wide. To fasten the thread to begin hemming, start two threads from the right-hand edge of the canvas and take up the two threads of the folded edge. Pull the thread through all but 1 centimeter at the end. Put this 1 centimeter up under the fold to the left and hold it there with the thumb of the left hand. Now bring the needle down and put it through the canvas below the fold, two threads in advance of the point

at which it came out before, and pointing it to the left. This is repeated for each stitch.

Hemming stitches should be slanting on both upper and under sides.

In basting, stitching, backstitching, running, oversewing, and hemming the work is done from right to left.

Exercise VII—Overcasting.

Materials.—The same as in Exercise I.

At the corner of the piece, fasten the thread as in beginning stitching, three threads from each edge. Put the thread over the edge of the canvas and put the needle in from the back, taking up three threads and advancing three threads each stitch. Proceed in this way around the piece and finish with three running stitches, turn and take two running stitches. Cut close.

Exercise VIII—Cross-stitch.

Materials.—The same as in Exercise I.

Across the middle of the piece, make a line of cross-stitches zigzagging across the piece.

Exercise IX—Buttonhole Stitch.

Materials.—The same as in Exercise I.

Make two rows of buttonhole stitches across the piece. Begin two threads from the right edge. Draw the needle through to the upper side. Take up vertically four threads. Bring the thread from the eye of the needle around the point of the needle from right to left. Pull the needle through. Bring the loop up straight to the top of the four threads. Take the next stitch in the same way, four threads to the left of the first stitch. Continue these stitches across the piece.

Exercise X—Darning.

Materials.—The same as in Exercise I.

Darning consists in making a series of running stitches in parallel lines, taking up two threads and going over two.

Find the middle of the right-hand edge of the piece. On this middle line count twenty threads from the right-hand edge. At this point

start the darning as directed to start stitching in Exercise II. Put the needle through from the under side. Going over two threads vertically, take up four threads, two each way, making a slanting stitch on the under side. Turn and make a line of two stitches, over two threads and under two, parallel to the first stitch. Turn, make the slanting stitch on the under side again, and another parallel line containing one more stitch than before. Continue until the required number has been taken. Then decrease the number of stitches in each successive line by one stitch until there is only one stitch in the line. Fasten the thread as in the running stitch. Be careful to have all slanting stitches on the under side.

Exercise XI—Patching and Matching Stripes.

Materials required by each pupil: One piece of striped cotton print or gingham 11 centimeters by 7 centimeters; one piece of same goods 5 centimeters square for a patch; white cotton thread, No. 60; needle, No. 6.

Cut a small hole in the middle of the larger piece. Turn in the edges of the smaller piece on the right side and baste it to the wrong side of the piece, being careful to see that the stripes on the patch match perfectly the stripes on the piece. Cut out the cloth about the hole, so that the hole will be square, and the edges of the square will be in line with the threads of the cloth. Cut diagonally across four threads at each corner of the square, turn in the edges and baste them down on the patch. Using the hemming stitch, sew the turned-in edges of the piece to the patch and the turned-in edges of the patch to the piece. Then remove the basting

Exercise XII—Piecing and Matching Stripes.

Materials required by each pupil: One piece striped cotton print or gingham 11 centimeters by 7 centimeters; white cotton thread, No. 60; needle, No. 6.

Cut the piece diagonally across.

Sew the two pieces together again in such a way that stripes will match. Use the stitching stitch.

Exercise XIII—French Seam.

Materials.—The same as in Exercise XII.

Using the stitching stitch, sew across the piece, making a tuck one-half centimeter wide. Cut off the folded edge of this tuck, making a seam as narrow as possible. Fold the piece on the seam, the cut edges inside, and sew across again. The second stitching should entirely cover the cut edges. This seam makes a neat finishing for all kinds of thin garments.

Exercise XIV—Fell—Putting on Bands.

Materials.—The same as in Exercise XII.

Make a tuck 1 centimeter wide across the piece. Use the stitching stitch. Cut off the folded edge, making a seam nearly 1 centimeter wide. Turn in the edge of the seam, fold the turned-in edge over on the cloth, and hem it down. This also is a neat seam for thin goods.

Questions in Third Grade Sewing.

What is the *object* in teaching sewing to pupils of the third grade?

What is the purpose of basting?

Spell: Hem, hemmed, hemming, stitch, stitching, oversewing, overcast, piecing, matching.

Describe the making of a fell. Of a French seam.

Should a patch be put on the right or wrong side of the piece?

What stitch should be used in sewing the piece to the patch?

Piecework.

1. Sewing Bag.

Material.—Any desired cloth. Two pieces of cloth 31 centimeters by 20 centimeters. Two pieces of cloth in shape of hexagon, 8 centimeters on each side. Two pieces of stiff carboard in shape of hexagon, $6\frac{1}{2}$ centimeters on each side. Two strips of cloth 31 centimeters by 2 centimeters for casing. Suitable thread. Two suitable strings three-fourths meter long.

Hem with a narrow hem one long edge of each large piece of cloth and around the corners on the shorter edges 4 centimeters from the corners.

Hem the ends of the casings. Baste the casings with their edges turned in on these large pieces parallel to the long edge which has been hemmed and 4 centimeters from it, so that the ends of the casings will be at the ends of the short hems. Using the French seam, sew the remainder of the short edges of one piece to the remainder of the short edges of the other piece. Roll and gather the remaining edge. Fit one six-sided piece of cloth to one six-sided piece of cardboard and baste them together, folding the edge of the cloth over the edge of the cardboard. Use the other six-sided piece of cloth and cardboard in the same way. Put these pieces of cardboard together with their uncovered sides together and oversew the edges. Oversew the rolled and gathered edge of the larger piece to this six-sided piece. Draw each string through both casings and fasten the two ends of the same string together. Take one string at one side of the bag and the other at the other side and pull them up to close the bag.

This made of silk and lined with a contrasting color of silk makes a very pretty bag.

2. Needlebook.

Material.—Two pieces of cardboard 8 centimeters by 5 centimeters. Any desired cloth, enough to cover both sides of both pieces of cardboard. Three pieces of white flannel 8 centimeters by 5 centimeters.

Notch the edges of the flannel. Arrange pieces of flannel as the leaves of a book and fasten them to one long edge of the covered cardboard piece. Fasten this long edge to a long edge of the other covered cardboard piece with long cat stitches. The initials of the girl who made the needlebook may be worked in cross-stitch on one of the pieces of flannel.

3. Holder.

The holder will require two squares of woolen goods 17 centimeters by 17 centimeters, a little cotton, and a half dozen threads of embroidery cotton, any desired color. Put between the squares of woolen cloth a layer of cotton sufficiently thick for protection against heat of the cooking utensils.

Baste these together to hold the cotton in place. Turn in the edges of the squares and sew them together with a running stitch. Finish the edge with embroidery thread, using the blanket stitch, which is made like the buttonhole stitch. At intervals of about 1 inch, over the piece, with the embroidery thread, make stitches through the holder, drawing the thread, tying it, and cutting it off. This is called *knotting* or *tying*, and it serves to keep the cotton in place. The bastings may be taken out. A loop of thread or a tape may be put on one corner by which to hang it.

4. Apron Having Ruffle.

Material.—Any desired cloth 95 centimeters long and 65 centimeters wide; band 58 centimeters by 6 centimeters; two strings each 76 centimeters by 8 centimeters; one piece for ruffle 1 centimeter by 8 centimeters. The piece for the ruffle should be cut with the short edge lengthwise of the goods. All other pieces should have their long edge lengthwise of the goods. Hem the ruffle with a narrow hem along one edge and both short edges, and gather it across the other long edge.

Turn up one short edge of the large piece 1 centimeter wide on the right side of the goods and crease it across. Pin the middle of the gathered edge of the ruffle to the middle of this creased edge. Scatter the gathers so that they will extend evenly across the end of the large piece and baste the ruffle to the creased edge. Two centimeters above this creased edge, crease a fold across the goods on the right side, and stitch in a tuck 1 centimeter wide. Bring the edge of the tuck down over the edge of the ruffle and stitch along the edge of the tuck, the gathering of the ruffle and the first crease. Three centimeters above the stitching of the tuck, crease across the piece again and stitch in another tuck 1 centimeter wide. Three centimeters above this make another tuck like the first two.

If the long edges of the large piece are not selvage they should be hemmed with a narrow hem before the ruffle is put on. Gather the upper edge of the large piece with a thread 31 centimeters long. Pin the middle of the gathered piece to the middle of one long edge of the band, and each end of the gathered piece 15½ centimeters from

the middle in opposite directions, and stitch to the band the gathered edge, scattering the gathers evenly across the 31 centimeters. Turn in both long edges and both short edges of the band. Fold the band through the middle, bringing the crease on one long edge to the crease on the other long edge. Baste these edges together. Hem one creased edge down over the gathering, and oversew the creased long edges together, leaving the creased short edges open to receive the strings. Hem the long edges of the strings with a narrow hem and hem one short edge with a hem 2 centimeters wide. Gather or fold the other short edge so that it may be inserted within the turned-in edges of the band and stitch the strings firmly in place.

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FOURTH GRADE.

HOUSEKEEPING.

The use of the duster was taught in the third grade. Let it not be forgotten in the fourth.

The uses of the dishcloth and dish towel will be demonstrated and practiced when the pupil takes up the work in cooking. The holder and apron will also come into use in the kitchen.

The bedroom furniture should be discussed. Reasons should be given why it is better to sleep on a bed than on the floor. Then the question will arise, How will the bed be furnished? Let the pupils see a bed made, noting the arrangement of the different articles—the bed, the mat, the lower sheet, the upper sheet, the quilt or blanket, the pillow with its case, and the mosquito net. Discuss the mat; ask whether an ordinary buri mat covered with a cotton sheet is enough protection under a person during the cooler months of the year. If it is not, consider some way of supplementing it.

Many persons lie down on the bare mat and in the same clothing that they have worn during the day. This is neither comfortable nor hygienic and should be discouraged.

The use of the lower sheet is to keep the body from actual contact with the mat. The upper sheet is used to keep the body from contact with the thicker upper covering, blanket or quilt. The pillowcase is used to keep the head from contact with the pillow. The parts of the bed which come in contact with the body will become soiled more or less quickly by such contact, and need to be changed often. The sheets and pillowcase may be taken away and washed frequently and easily, while it

would be difficult to clean the mat, blanket, quilt, and pillow as often as hygiene would demand, if they actually touched the body.

It is proper to call attention here to the purifying effects of fresh air and sunshine. It is a good habit to form, to see every morning that all parts of the bed are put where the fresh air may blown upon them, and in the sunshine whenever possible.

The mosquito net is necessary both for comfort and for hygienic reasons. It is now generally believed that a certain kind of mosquito aids in spreading malaria, so that a net is a necessary protection against the pest. The net should be kept whole, clean, and aired with the other parts of the bed.

The towel and wash cloth must be kept clean and dry when not in actual use. They should be changed frequently and not be allowed to become ill smelling.

The linen for the table should be white and clean and smooth. When the tablecloth is removed from the table, it should be folded in the same folds into which the laundress ironed it. In this way it may be kept smooth for a longer time. It is better to have the tablecloths and napkins laundered without starch. The table should always be made as attractive as possible.

No part of the household work is more important or requires more intelligent care than the care of the infant in the home. The clothing should be simple, easily washed, easy to put on, without stiffness, sufficient for warmth and cleanliness, but not burdensome. In this country little clothing is enough, but that little is necessary. For the very young infant, while the little one is kept in the home, a band and diaper may be enough. When the child is old enough to be taken from home the little dress may be added. The skirt and blanket may be used when the temperature demands additional clothing. Soft white cloth is best for the child's clothing, as it is easily kept clean, and there is no coloring matter that may prove irritating to the tender skin. The child should wear a diaper all the time, and this should be changed often enough

to keep the child sweet. The skin of the child is very tender and is easily irritated by dampness and dirt.

The number of these garments for a complete outfit for a child should be discussed with the girls. This will depend on the means of the parents, and the frequency with which they can be laundered. The conclusion reached should be that there must be enough changes to keep the child sweet and clean at all times.

QUESTIONS ON HOUSEKEEPING.

Why do we use sheets and pillowcases?

Why is the mosquito net necessary?

Describe the place of each article on the bed when it is made properly.

How may the different parts of the bed be kept pure and sweet?

How may the tablecloth be kept smooth, so that it may be used for more than on meal?

Of what color should the infant's clothing be? Why?

Is it a good plan to starch the baby's dress? Why?

What two facts should determine the number of articles necessary for an infant's outfit?

LAUNDERING.

Importance of boiling clothes.—Boiling in laundry work serves a threefold purpose. It bleaches the clothes and removes the dirt which has resisted the rubbing on the board, it kills all living organisms which may have found the soiled cloth good soil for their growth, and it makes it possible for the work to be done in much less time than it can be done without boiling.

What clothes should be boiled.—It is well to boil all table linen, towels, handkerchiefs, and all white clothing worn near the skin. Colored clothing and woolens should not be boiled, as boiling takes the color out of colored goods and shrinks and fulls flannels.

Why is it well to hang clothes on a line instead of spreading them on

the grass? If clothing be laid upon the grass to dry it will be likely to take up all kinds of bacteria and minute insect life. On a line it is probable that few if any life germs will be collected.

Washing flannels.—The water in which flannels are to be washed should be soft, soapy, and a little warm. Soap should not be rubbed on the cloth. The garments should be rubbed between the hands, not on a board. The should then be rinsed in clear, soft water a little warm, and hung in a shady place to dry. The iron with which they are pressed should not be very hot.

This discussion should be followed by experiments showing the difference in results of boiling the clothes and not boiling them, and by practice in washing, boiling, rinsing, and hanging out napkins, tablecloths, handkerchiefs, towels, and underwear. Attention should be paid to sorting the clothes. This work may be done quickly. There is no necessity for making the laundry work such a long process as is the custom among many landry men and women here.

QUESTIONS ON LAUNDRY WORK.

Where should washed clothes be spread to dry? Give reasons for your answer.

What clothes should be boiled. Why?

Describe the process of washing flannels.

In the study of domestic science what should accompany or follow all discussions?

SEWING FOR FOURTH GRADE.

The making of household linen for a model nipa house shall constitute the work to be done in sewing in fourth grade. In the process of making these articles the more important stitches will be reviewed at the same time. The material to be used in making these articles is to be the most appropriate that can be found in the markets or stores in the municipality.

ARTICLES TO BE MADE (TO BE FULL SIZE).

(*a*) For the kitchen:
1. Duster, stitches, plain hem.
2. Dishcloth.
3. Dish towel.
4. Holder.
5. Apron.

(*b*) For the bedroom:
1. Sheet.
2. Pillowcase, French seam.
3. Towels.
4. Quilt.
5. Mosquito net.

(*c*) For the dining room:
1. Tablecloth, linen hem.
2. Napkin, linen hem.

(*d*) Baby's outfit:
1. Flannel band (5 inches by 14 inches). For hygienic reasons this shall have no stitches on it.
2. Diaper (24 inches by 24 inches), edges hemmed.
3. Slip skirt which shall fasten on the shoulders with button or string, finishing at top with facing and lace edge.
4. Simple dress, neck to be finished with casing and drawstring, bishop sleeves—first placket.
5. Blanket (27 inches by 27 inches), edges to be turned, basted, and feather stitched.

REMARK.—In connection with this work the number of each article necessary for an outfit should be considered and the purpose and care of each article should be discussed.

The fourth-grade sewing should be work on household linen and the making of garments belonging to an infant's outfit.

FOR THE KITCHEN.

The *duster* may be a piece of soft cheesecloth cut square, the length of each side being equal to a width of the goods. The cut edges may be finished by a hem one-half centimeter wide, applying the hemming stitch.

The *dishcloth* may be a square piece of toweling like the dish towel, the length of each side of the square equal to the width of the goods. The cut edges may be finished with a plain hem as in the duster.

The *dish towel* may be of any soft absorbent cloth, 1 meter long and the width of ordinary crash toweling. It may be finished with a plain hem on the cut edges.

The *holder* has been described in the third year's work.

The *kitchen* apron may be of any desired material. If the cloth is the width of ordinary calico and the same on both sides, 2.1 meters will be enough. If the cloth is different on the two sides, 3.1 meters will be needed.

Take one length 1 meter long across the goods for the front of the apron. Fold it lengthwise through the middle. Crease both halves from a point 8 centimeters from two corners which are folded together to the other two corners. Cut along this crease, making a gored front. If the material is the same on both sides, take 1 meter more of the cloth for the backs of the apron. Crease this piece from a point on its crosswise edge 30 centimeters from the corner to a point on the opposite edge 30 centimeters from the corner diagonally opposite the first corner. This makes two equal pieces. Put the straight edges of the back pieces to the gored edges of the front piece, having the narrow ends of the front and backs together. Beginning 25 centimeters from the top, sew the backs to the front in a French seam. Hem the gored edges of the back with a plain narrow hem, and the bottom with a hem 2 centimeters wide. Hem also with a narrow hem the 25 centimeters of the side seams. Gather the edges at the top and put them in bands 5 centimeters wide. Make the band across the front 20 centimeters long. The backs may be put into two short bands each 10 centimeters long. Across the shoulders sew in straps 12 centimeters long. Make a buttonhole in the end of the band on the right side and put a button on the band on the left. If the goods are not the same on both sides, to cut the backs use two lengths 1 meter long.

FOR THE BEDROOM.

The *sheet* for a double bed should be made of sheeting $2\frac{1}{3}$ meters wide by taking the length $2\frac{1}{2}$ meters and making a plain hem 5 centimeters wide on one end to be put at the head of the bed, and on the other

end a plain hem 1 centimeter wide to be put at the foot of the bed. If the wide sheeting is not to be obtained, two lengths of the narrow sheeting oversewed together will make good sheets. Hemstitching makes a neat finish for the head hem. For a single bed the sheet may be $2\frac{1}{3}$ meters by $1\frac{3}{8}$ meters.

The size of the pillow for which the case is made will govern the size of the case. The case should be just wide enough to fit over the pillow, and long enough to hang over the end about a quarter the length of the pillow. The material should be of the same kind as for the sheet. Sew across one end and down one side in a French seam. Finish the open end with a plain hem 5 centimeters wide. This hem may be hemstitched if desired.

Towels are of various sizes. The ends may be finished with a plain narrow hem, or a wider hem hemstitched if desired. The wash cloth may be made of the same material as the towel. A square of the toweling is a convenient size. Finish the cut edges with a plain narrow hem.

The *quilt* is made like the holder, but its size for a double bed is 2 meters by $2\frac{1}{3}$ meters. For a single bed the size should be $1\frac{3}{8}$ meters by $2\frac{1}{3}$ meters. The quilt consists of two pieces of cloth, white or print, of the dimensions given above, and a layer of cotton between. A frame to stretch the quilt on will have to be used. In this frame the knotting or quilting is done before the edge is finished. The knotting may be done with bright-colored wool, which makes the quilt more attractive in appearance.

The top of the *mosquito net* should have the same length and width as the bed. The part that hangs down over the bed should be long enough to go around the bed well and at least $1\frac{1}{2}$ meters wide. It is well to have a little fullness at the corners. In joining the sides to the top make the seam on the right side and bind it with a strip of strong white cloth or tape. Fasten at the corners pieces of tape by which to hang the net. The material for the mosquito-net may be any of the thin materials found in the market.

FOR THE DINING ROOM.

The *table-cloth* should be long enough and wide enough to hang well over the sides and ends of the table. Finish cut edges with a linen hem 5 centimeters wide. The linen hem is made by creasing the hem as for a plain hem and then creasing a third time in the opposite direction just where the second crease falls upon the table-cloth. Then oversew the second and third creases together. After sewing, make the third crease flat again. The advantage of this hem is that the stitch on the right side of the cloth is in the same direction as the threads of the warp, so that when the cloth is washed, the threads of the stitch are not noticeable.

The *napkin* is hemmed with a narrow linen hem on its cut edges.

BABY'S OUTFIT.

The *flannel band* is a piece of flannel 13 centimeters by 36 centimeters. This has no stitches.

The *diaper* is a square of bird's-eye cotton having one side equal in length to the width of the goods. The cut edges are finished with a plain narrow hem.

The *slip skirt* and *little dress* may be cut according to any desired pattern. Directions for cutting and making will be given with the pattern.

The *blanket* is to be made of a square of white flannel, each edge being equal in length to a width of the goods. An inch hem may be turned and basted in around the four sides of the blanket. A line of feather stitching in white embroidery silk may be put in on the right side of the blanket to hold the hem in place.

REMARK.—It would be well if each girl in the class could make at least one of each of these articles full size. They are all salable articles, so that if some one is willing to advance the money for the material, there need be no loss to anyone.

QUESTIONS ON FOURTH GRADE SEWING.

What stitch should be used in finishing the duster? Dish towel? Table-cloth?

What kind of seam is good for sewing the seams of the apron?

Give dimensions of sheet for a double bed. For a single bed.

Why is it well to have the hem at the two ends of the sheet of different widths?

Name the articles to be made for use in the kitchen. In the dining room. In the bedroom.

What is the advantage of the use of the linen hem in hemming tablecloths and towels?

Is there any article named for use in one room which must be used in every other room in the house? If so, which?

COOKING.

"Good cooking means the knowledge of all fruits, herbs, balms, and spices, and of all that is healing and sweet in fields and groves, and savory in meats. It means carefulness, inventiveness, watchfulness, willingness, readiness of appliances; it means the economy of your great-grandmothers and the science of the modern chemist; it means much tasting and no wasting; it means English thoroughness, French art, and Arabian hospitality; it means, in fine, that you are to be perfectly and always ladies (loaf givers), and, as you are to see that everybody has something pretty to put on, so you are to see that everybody has something to eat."—*Ruskin.*

INTRODUCTORY NOTE.

The following material is not intended to be a text-book for the pupils. It is intended to be material from which the teacher may select work suited to her grade of pupils and the supplies with which she has to work. It is not expected that any fourth grade will be able to complete in one year all the work given here. Nor is it expected that any school will be able to supply all the materials given in the following recipes. But each teacher may be able to find in the following directions something of help in using the supplies which are furnished.

Cleanliness must be emphasized first, last, and all the time—cleanliness of person, dress, utensils, kitchen, and food.

GENERAL DISCUSSION.

STUDY OF UTENSILS.

Accompanying a study of the principles and methods of cooking, the teacher may give a lesson on utensils. The pupils should see the utensils and be taught their use. They should learn their names and how to spell them as well. It would be well to emphasize certain facts, thus: A tea-kettle is the utensil in which *water* is to be boiled; a *coffee-pot* is used in making *coffee;* a *wash-basin* is for washing *hands* a *dish-pan* is for washing *dishes.*

MEASURING.

Exact measuring is necessary to get the best results in cooking. Flour, meal, powdered sugar, soda, and baking powder should be sifted before measuring. All materials are to be measured level. Use a cup to measure dry materials, leveling the top with a knife. A cupful of liquid is all the cup will hold. A spoonful of liquid is all the spoon will hold. To measure lard, butter, or any solid fat, pack solidly into the cup and level off with a knife. To measure a cupful or spoonful of any dry substance, heap material on spoon or cup, lift it and level with the flat surface of a case knife.

Half a spoonful is a spoonful divided lengthwise. Quarter of a spoonful is one of the four parts obtained by dividing a spoonful into half crosswise and lengthwise. A speck is as much as will lie on the point of a pointed knife.

Note.—When an amount of milk is given in a recipe and it is necessary to use evaporated milk from a can, take one-third of the quantity given in the recipe and dilute with water to the required amount.

Abbreviations.

tbsp.=tablespoon.
tsp. =teaspoon.
c. =cup.
min.=minute.
oz. =ounce.
spk.=speck.
lb. =pound.
h. =hour.

COOKING ON NATIVE STOVES.

Equivalents.

3 tsp.	=1 tbsp.	4 c. flour	=1 lb.
4 tbsp.	=¼ c.	2 c. granulated sugar	=1 lb.
2 tbsp. sugar	=1 oz.	2 tbsp. butter	=1 oz.
2 tbsp. liquid	=1 oz.	4 tbsp. flour	=1 oz.
2 c. liquid	=1 lb.		

CONSTITUENTS OF THE BODY.

The five constituents of the body are water, mineral matter, carbohydrates (starch and sugar), proteids, and fats. In order that all parts of the body may receive proper nourishment, our food must contain these five constituents in their proper proportions.

WATER.

Uses in the body:

(*a*) As a solvent.

(*b*) As a carrier of digested food in liquid form to all the tissues.

(*c*) As a carrier of waste products of the body from the tissues.

(*d*) As an aid in all chemical changes of the body.

(*e*) As a heat regulator.

Uses in cooking: In boiling, steaming, simmering, and stewing, heat is applied indirectly by means of water.

BEVERAGES.

The principal use of the beverages is to quench thirst. Thirst is the body's demand for water, therefore water is the best of beverages. Other drinks satisfy thirst, simply by means of the water they contain.

(*a*) *Tea.*—To make tea in an earthen pot it is best. Do not use tin. Scald the pot and put in the tea, 1 tsp. Ceylon tea for three cups. Pour over the tea freshly boiled water and let stand covered for 4 min. Serve at once. (Different kinds of tea require different proportions.)

(*b*) *Coffee.*—Scald the coffeepot. Measure out 1 tbsp. for each cup of water. Add the white of 1 egg. If the white of 1 egg is not enough to cover the coffee, add enough cold water to do so. Mix

well. Pour over the coffee in the pot as many cupfuls of boiling water as you have used tbsp. coffee. Put the pot on the stove and allow to come to the boil. Add ½ c. cold water, stir down with a spoon and allow to stand 1 min., then serve.

(*c*) *Chocolate.*—Allow 1 oz. of chocolate to each 2 c. of liquid. To make 4 cups, put 2 oz. chocolate into a double boiler and add 2 c. hot water. Stir until chocolate is melted and hot. Then add 2 c. milk. Beat and stir rapidly until the water in the under boiler again reaches the boiling point. Add 3 rounding tbsp. sugar and take from fire. Beat rapidly 1 min. Turn into hot chocolate pot and serve with cream.

FOOD.

Definition.—A food is anything which, if taken into the body, will either build up and repair the waste tissues of the body or yield heat and energy. Review the five constituents of the body.

Reasons for cooking food.—There are three chief reasons for cooking food:

(*a*) To make it more palatable.

(*b*) To make it more digestible.

(*c*) To destroy animal and vegetable parasites.

Principles and methods of cooking.—

1. Broiling, cooking over a glowing fire.

2. Roasting, cooking before a glowing fire. (Direct application of heat in 1 and 2.)

3. Baking, cooking in an oven. (Application of heat by means of heated air.)

4. Boiling, cooking in boiling water. (Heat applied by means of water.)

5. Stewing, cooking for a long time in water below the boiling point. (Heat applied by means of water.)

6. Steaming: (*a*) Moist, cooking in a steamer by contact with steam. (*b*) Dry, cooking in a double boiler by means of steam surrounding the vessel.

7. Frying, cooking in hot fat, deep enough to cover the articles to be cooked. (Heat applied by means of heated fat.)

8. Sautering, cooking in a small quantity of fat. (Heat applied by means of heated fat.)

9. Pan broiling or pan baking, cooking in a frying pan or on a griddle with little or no fat; heat applied by means of heated metal.

CARBOHYDRATES.

The use of the carbohydrates in the body is to yield heat and energy.

Cereals, or grains, are grasses, the seeds of which are used for food. Among the most important are rice, wheat, Indian corn, oats, rye, and barley. Cereals are the most important of the vegetable foods as they contain all the kinds of food stuffs necessary to support life. Containing as much starch as they do, they are valuable as fuel foods.

Cereals may either be boiled or steamed dry in a double boiler. Only by long cooking are cereals made wholesome. They should absorb all the water in which they are cooked. If too moist when nearly done, cook uncovered for a little while.

A general rule for cooking cereals is, cooking a long time at a high temperature.

RICE.

Rice is the poorest of all cereals in proteid and fat. On the other hand, it has fully 76 per cent of starch. The starch has the advantage of being present in small and easily digested grains. Boiled rice has the following composition:

	Per cent.
Water	72.5
Proteid	2.8
Fat	.1
Carbohydrates	24.4
Mineral matter	.2

Rice is only moderately easy of digestion in the stomach. This is due to the fact that it is not the function of the stomach to digest carbohydrates. On the other hand, rice is absorbed with great completeness in the intestines. Its solid constituents enter the blood almost as completely as those of meat.

The nutritive value of rice is much impaired by its lack of proteid and fat. Hence it is not fit for an exclusive diet, but should be eaten with other substances rich in these two elements, such as eggs and milk. Rice contains four times as much nourishment as potatoes. It is readily absorbed and leaves little or no waste in the intestines. It forms the chief food of three-fourths of the world's inhabitants. Rice is a carbohydrate, a fat-forming and an energy-producing food, and digests principally in the small intestine.

RECIPES.

Cream of rice soup.—One-half cup rice; ½ large onion; 2 tbsp. butter; ½ tsp. celery salt; 1 tsp. salt; ½ tsp. pepper; 1 quart milk (3 cups water, 1 cup cream). Wash the rice thoroughly. Throw it into a quart of boiling water. Boil rapidly for 10 min. and drain. Put it into the double boiler with the milk. Cover and cook slowly for 30 min. While this is cooking, cut the onion into slices, and cook it carefully, with half the butter, in a frying pan. The onion must be perfectly tender, but not brown. When the rice is tender, press it through a colander, add the onion from the frying pan. Return it to the double boiler, add the remaining tablespoonful of butter, salt and pepper. Strain and serve at once.

TOAST.

Water toast is made by dipping toast quickly into a dish of boiling water. Spread with butter and send immediately to the table.

Milk toast is made by pouring scalding hot milk over dry toast. A tbsp. butter may be added to each quart of milk. To prevent scorching, heat the milk in a double boiler.

RECIPE FOR A SIMPLE BREAKFAST.

Rolled oats.—Stir 1 cup of oats into 2 cups of boiling water, to which has been added ½ tsp. salt. Do not add the oats fast enough to stop the boiling. Stir only until the flakes have absorbed the water. Cover and cook 30 min.

Scrambled eggs.—One-fourth c. milk; ¼ c. water; 1 tsp. salt; ⅓

tsp. pepper; 1 tsp. butter. Beat yolks slightly with fork. Add pepper and salt and milk. Heat frying pan, put in butter, and when heated put in mixture and cook, stirring and scraping continuously from bottom of pan until done.

Toast.—Cut bread twenty-four hours old into slices ⅓ in. thick. Trim off crust, put in oven a few minutes, then hold over fire and color an even brown on each side. Serve buttered or dry, uncovered.

PRACTICE.

Table-setting.—Use clean linen. Have the cloth long enough and wide enough to hang well around the table. Under the linen cloth have a silence-cloth of some soft heavy material. Place the center of the tablecloth in the center of the table, having the folds straight with the edge of the table. When there are no warm dishes to be served, place a plate right side up for each person, having the plates arranged in an orderly way around the table. Place knife on right with edge toward the plate. Place fork on left side with tines up. Place soup spoon at right of knife, bowl up. Place teaspoons in front of plate, handles to the right, bowls up. Place tumbler, top up, at the right. Place the butter, or bread and butter plate, at the left. Place the napkin at the left neatly folded. Place salt, pepper, vinegar, oil, jelly, pickles, etc., inside this line of plates.

When finger bowls are used, put them on dessert plates with a doily underneath the bowl; place at left of each person. When fruit is served as a first course, place finger bowls in center of cover. Where hostess serves tea or coffee, arrange the service neatly in front of her.

Arrange chairs at a sufficient distance from the table so they need not be drawn out when the people are to be seated.

Rules for serving.—Cold food should be served on cold dishes; hot food on hot dishes.

Dishes should be passed on a tray; if necessary to handle hold them so that the thumb will not rest upon the upper surface.

In passing dishes from which a person is to help himself, pass them always to the left side, so that the food may be taken with the right hand. In passing individual dishes, such as coffee, etc., set them down

carefully from the right side. When the dishes are being served by a person at the table, the waitress should stand at the left, holding the tray low and near the table. Take on the tray one plate at a time and place it before the person for whom it is intended, setting it down from the right side.

When one course is finished, take the tray in the left hand, stand on the right side of the person, and remove with the right hand the dishes that have been used.

Soiled dishes must be first removed, then food, then clean dishes, then crumbs.

Fill the glasses before every course. Never fill glasses or cups more than three-fourths full. Before the dessert is served, remove crumbs from the cloth, with either a brush, knife, or napkin. Do not let the table become disorderly during the meal.

Cooking and serving breakfast with the following menu: (1) Rolled oats; (2) Scrambled eggs; (3) Buttered toast; (4) Coffee.

Dishwashing.—Preparation: Scrape all food from dishes, rinse cups, pile all dishes of one kind together.

Soak in cold water all dishes which have been used for milk, eggs, and starchy food; those used for sugary substances, in hot water. Wipe greasy dishes with soft paper, then soak in hot water.

Use dish pan, rinsing pan, and draining pan.

Order: Where there are many dishes, begin by washing cooking utensils, as it is better to do the hardest part first. Take clean water, wash glasses, silver, delicate china, cups and saucers, then larger dishes. Wash and rinse the dishes in warm water. Never pile dishes of all kinds together in a dish pan. The handles of knives, if of wood, bone, ivory, or pearl, should not be put into the water, as they are likely to split.

Towels: Use soft linen towels for glass or silver, heavier towels for other dishes. Have a soft dish-cloth, heavy pot-cloth, and a scrubbing-brush.

Cleaning materials: Soap for dish-water. Wash tinware in hot, soapy water. Take special care to get all seams clean. If tinware is discolored by food burned on, boil out with strong soda water. Polish

with whiting. Remove stains from granite ware with sapolio. Polish steel knives with sapolio, rubbing with a cork. Clean silver with whiting and soft cloth.

Care of dish towels and cloth: Dish towels and cloths should be washed thoroughly after each using, scalded, and dried, out of doors if possible, on a line.

Care of scrubbing boards and tables: Wash thoroughly with a wet cloth. Rub sapolio on the wet board, wet the scrubbing brush and scrub well. Rinse off the suds and wipe as dry as possible.

VEGETABLES.

Vegetable foods are divided into four different classes:

1. Cereals: grains studied in last lesson.
2. Legumens: peas, beans, etc.
3. Tubers: potatoes, turnips, carrots, etc.
4. Green vegetables: the leaves, stalks, and tender parts of vegetables. Examples are cabbage, lettuce, celery, eggplant, and tomatoes. The flowers of some plants are used.

Vegetables contain mineral matter important to health, starch, sugar, water, proteids, and vegetable fiber.

Preparation of vegetables.—Wash all vegetables, and if wilted soak in cold water. Starchy vegetables are to be cooked at high temperature to burst the starch granules. Vegetables containing much vegetable fiber must be cooked a long time at a high temperature to break the cellulose. Some vegetables are better cooked uncovered. Green vegetables keep their color better, and onions, cabbages, and turnips are better flavored and more digestible if cooked uncovered.

RECIPES.

Tomato soup.—Three-fourths c. fresh cooked tomatoes; 1½ c. hot water; 1 tbsp. butter; 1 tbsp. cornstarch; ¼ tbsp. celery salt; ¼ tbsp. salt; a few grains pepper; 1 slice onion; 1 tbsp. sugar. Cook water, tomatoes, onions, and salt; strain. Add butter, and moisten the cornstarch in a little cold water. Add to soup and boil until clear. Season and serve.

Croutons.—Cut slice of bread ½ in. thick, then into ½ in. squares.

Butter lightly and heat in shallow tin pan until crisp and golden brown. Serve with soup.

Boiled potatoes.—When potatoes are free from black spots and imperfections, boil them in skins, paring only narrow strips around the edges to keep them from bursting. If the potato is to be pared, take off as thin a paring as possible. Cover with salted boiling water and keep boiling gently until well done. Drain immediately. Do not let potatoes stand in hot water not boiling. After draining, shake to allow steam to escape. Place on back of stove to dry. Pare before serving. A medium-sized potato will cook in about 30 min.

Green papaya used as a vegetable may be stewed until soft, and then covered with a thin white sauce seasoned to taste.

Bamboo shoots.—Select a young bamboo sprout and shred. Wash well. Cover with cold water and bring to a boil. Throw off this water and cover again with cold water. Drain again and cover with cold water. In this third water boil the vegetable until tender. Dress with white sauce as in the preceding recipe.

REMARKS.—This draining process is to be used in the case of any vegetable which is inclined to have a strong taste.

The tendency is to cook vegetables too little. All vegetables must be cooked until tender, that the cellulose may be broken down. If this be not done in cooking, either it will have to be done by the digestive organs, or much of the nutriment will be lost.

Bamboo cold slaw.—Prepare the bamboo as in the preceding recipe. Instead of the white sauce dressing, cover with the following sauce: ½ c. milk; 2 eggs; 1 tsp. salt; 2 tbsp. vinegar; ¼ tsp. pepper; 1 tsp. butter. Put the vinegar in to boil. Beat the eggs and add the milk and butter. Add to these the boiling vinegar. Stir over the fire until boiling. Add the salt and pepper and pour over the bamboo. Serve cold.

Amargoso with shrimps.—Cut the amargoso into small pieces. Put into a kettle with cold water. Bring to a boil and drain. Repeat twice. In the third water, cook until the vegetable is tender. While the amargoso is cooking, pour boiling water over the shrimps and remove the shells. Put into a frying pan with a little hot fat and cook 2 min.

Put the shrimps in the kettle with the amargoso as soon as the vegetable is tender and cook a few minutes. Serve hot.

REMARKS.—Papaya, bamboo, and pichay may be cooked in the same way as amargoso. The leaves and stem of pichay may all be cut up together. The leaves of the pichay are very good with meat and vegetable salads as a substitute for lettuce.

PROTEIDS.

The principal function of all proteid foods is to build up and repair all tissues of the body. They also yield heat and energy.

Eggs.—The egg is a complete food because it contains all the substances necessary to build up the body. The white of the egg is composed of water, albumen, and a little mineral matter. The yolk is composed of water, albumen, mineral matter, and a yellow oil. The albumen of the egg coagulates at a temperature of 160° F. Cooked at this temperature an egg is soft, tender, and jelly-like. Cooked at the temperature of boiling water it is hard.

Eggs form a typical food, inasmuch as they contain all the elements necessary to support the body. Their highly concentrated nutritive value makes it necessary to use them in combination with other foods which are rich in starch, as bread or potatoes. In order that the stomach may have enough to act upon, a certain amount of *bulk* must be furnished.

A pound of eggs (about ten) is equivalent in nutritive value to a pound of beef. Eggs being rich in proteid serve as a valuable substitute for meat. Only strictly fresh eggs should be used. After the first twenty-four hours, an egg steadily deteriorates, the shell is porous and, when the egg is exposed to the air, there is an evaporation of water in the egg, the air rushes in, and decomposition takes place.

The white of the egg contains albumen in its purest form. Albumen coagulates at a temperature of from 134° to 160° F. For this reason it is important to cook eggs at a low temperature, thus making them easy of digestion. Eggs cooked in boiling water are tough and difficult of digestion, and should never be served.

Ways of determining the freshness of eggs.—1. Place in a basin of cold water, and if fresh they will sink.

2. Shake, and if there is no suggestion of a rattling sound, they are good.

3. Place large end to cheek and a warmth will be felt in a fresh egg.

Uses.—In addition to its great food value, the egg has many uses in the kitchen.

It thickens custards and sauces.

It clears soups and jellies.

It makes crumbs stick to chops or croquettes.

It leavens cake.

It garnishes salads.

It mixes with oil to make a salad dressing.

It combines with left-over bits of fish or meat to make a good dish.

RECIPES.

Hard-cooked eggs.—Place eggs in enough boiling water to cover them well. Cover saucepan and place on back of stove or in warm place where water will not boil, but will remain at about 160° for 30 or 40 min.

Soft-cooked eggs.—Follow directions for hard-cooked eggs, allowing eggs to remain in water at 160° about 8 or 10 min.

Baked eggs.—Butter a baking dish and sprinkle with fine cracker crumbs. Break each egg into a cup to make sure it is fresh. Break it carefully so as not to break the yolk; then slip carefully into the baking dish. Cover lightly with seasoned buttered crumbs of bread and bake in moderate oven until crumbs are brown.

Poached eggs.—Have ready a shallow pan two-thirds full of boiling salted water, allowing ½ tsp. salt to 1 qt. of water. Break each egg carefully into a cup and slip carefully into the water. The water should cover the eggs. When there is film over the top, and the white is firm, carefully remove to a bit of buttered toast and serve.

Plain omelet.—Four eggs, ½ tsp. salt, 4 tbsp. water, 1 tbsp. butter, a sprinkle of pepper. Beat whites and yolks separately, beating yolks until thick and lemon-colored, add salt and pepper and water and fold in

whites beaten stiff and dry. Melt butter in pan and cook slowly till underside is brown and all has become firm.

Egg salad.—Separate whites and yolks of 4 hard-boiled eggs. Cut whites in thin crescents or strips. Arrange on lettuce, pacó, or pichay. Force yolks through potato ricer and heap on center of whites. Serve with the dressing given in the recipe below.

Boiled dressing.—Three eggs, ½ c. butter, 1 tsp. ginger, 1 tsp. mustard, 1 tsp. sugar; add ½ c. vinegar hot; beat till cold.

Egg vermicelli.—Cook three eggs as directed for hard-cooked eggs. Drop into cold water to remove shells easily. After removing shells, separate yolks and whites. Put whites through potato ricer. Toast four slices of bread. Make 1 cup thin white sauce. Stir the whites of eggs into the sauce, and when hot pour it over the toast. Rub yolks through potato ricer over the toast.

White sauce.—One-half c. milk, 1 tbsp. butter, 1 tsp. flour, ½ tsp. salt, ⅛ tsp. pepper. Cook butter and flour together in small pan, stirring constantly until smooth. Add milk a little at a time, stirring rapidly to make smooth. Cook 5 min.

The white sauce is a nutritious food in itself and is valuable also when added to meat, fish, eggs, and vegetables. A brown sauce may be made by allowing the butter or flour to brown in the pan before mixing it with the other ingredients. Brown meat stock is then added. The usual white sauce combined with equal quantities of meat stock, fish stock, or vegetable stock gives us the cream soups.

The white sauce is the foundation of many croquettes and other made-over dishes. For meat and fish croquettes the sauce is made of double thickness by using one-half as much liquid.

Graham mush.—Two c. boiling water to which has been added ½ tsp. salt. Sprinkle in this, while boiling, ½ c. of graham flour. Boil 5 min., then let simmer gently for 20 min. Eat for breakfast food with cream and sugar.

Boiled rice.—Wash rice in cold water, rubbing kernels between fingers. Add slowly to boiling water which has been salted. Do not put in the rice rapidly enough to check the boiling. Boil 30 min. or until soft,

which may be determined by testing kernels. Drain in colander and pour over 1 quart of hot water. Return to kettle in which it was cooked. Cover and let stand on warm stove to dry. When stirring rice always use a fork to avoid breaking kernels. Use four times as much water as rice.

Rice griddle cakes.—One c. milk, 1 c. boiled rice, ½ tsp. salt, yolks of two eggs, whites of two eggs, 1 tbsp. melted butter, 1½ half c. flour, 1½ half tsp. baking powder sifted with flour. Pour milk over rice and salt, add yolks of eggs beaten until thick and of lemon color, butter and flour; fold in whites of eggs well beaten. Drop by spoonfuls on greased hot griddle. Cook on one side. When puffed, full of bubbles, and cooked on edges, turn and cook on the other side.

FRESH MEATS—EXPERIMENTS WITH DIFFERENT METHODS OF COOKING.

The nitrogenous foods are called proteids and sometimes albuminoids. The best examples of this class are meat, milk, eggs, and cheese. The proteids are called flesh formers. No other food constituent can build tissue. As an article of food meat possesses the advantage of containing all the constituents of the body. It is also very easily and completely digested. Meat consists of muscular tissue, fatty tissue, and connective tissue. The muscular tissue is made up of bundles of fibers bound together by connective tissue. In the fibers are the juices of the meat. Meat as prepared for food is prepared in different ways according to the results desired.

(*a*) Cooked in such a way that all the juices are kept in the meat.

(*b*) Cooked in such a manner as to extract all the juices.

(*c*) Cooked in such a manner as to extract a part of the juices.

As a general rule cook all albuminous foods at a low temperature, the length of time varying according to the results desired.

The cooking should soften and loosen the connective tissue, so that the little bundle of fibers which connect the nutriment may fall apart easily when brought in contact with the teeth.

Experiment to show the effect of water at different temperatures on raw meat.

(*a*) Put a bit of raw meat into boiling water and boil it hard for ten minutes. The meat is toughened and very little of the nutriment has passed into the water.

(*b*) Place a bit of lean raw meat in a cup of cold water and allow it to stand an hour. The water becomes red and the meat becomes whitish. The juices of the meat have passed into the water.

(*c*) Put the meat into cold water and bring the temperature slowly to the boiling point. The meat is tender and some of the nutriment is in the water. This is the method employed in making a stew.

To cook meat so that the juices may be retained in the meat, apply a high degree of temperature to the surface of the meat until the albumin of the surface is toughened enough to prevent the juices in the interior from escaping. Then reduce the temperature to from 168° to 180° during the time needed to cook sufficiently the remainder of the meat.

When the nutriment is to be used in broths and soups, it is necessary to extract the juices. To do this cut the meat in small pieces and put in cold water. Bring the water slowly to a temperature of 160° and allow it to simmer at that temperature until the juices are in the water. The meat is then tasteless, but it retains some of its proteid substances. It may be made palatable by mixing it with white sauce and seasoning as in croquettes.

FISH.

The varieties of fresh fish are numberless, and to cook and serve them in perfection requires careful study. Fresh fish may be cooked in any of the ways applicable to meat, the length of time being very much shorter, and care being required on account of the delicacy of the fiber.

Food value and digestibility of fish.—Fish is more easily digested than any other meat, as the fibers are large and have little connective tissue. It is not so stimulating as meat, and these two facts make it a desirable food for persons of sedentary habits and brain workers. As a means of varying the diet it is a valuable food.

How to know a fresh fish.—In a fresh fish the gills are bright red,

the flesh along the backbone is firm and elastic, the eyes bulging and bright.

To clean a fish.—After the fish has been scalded and dressed, it should be wiped inside and out with a cloth which has been wet in cold salted water.

To steam fish.—Place the fish in a steamer and cook over boiling water.

To boil fish.—To the water in which the fish is to be boiled, add the juice of half a lemon and salt, or ¼ cup vinegar. Place fish on plate, the plate in a square of cloth; lower it into the boiling water and let it simmer (not boil) until done. Time varies with shape and size of the fish.

PROTEID VEGETABLES.

There is a group of vegetables containing much nitrogen. To this group belong dried peas, beans, lentils, chick-peas, and peanuts. The albuminoids are present in a substance called legumin. These vegetables, being rich in nitrogen, should be used instead of meat, not with it. However, beans, lacking fats, may be used with fat pork.

Since these vegetables are dried, they should be soaked for a long time before putting them over the fire. These vegetables are rich in nutriment, but they are slowly digested. They require long, gentle cooking.

FATS.

The function of fat in the body is to furnish heat and energy and to store up fatty tissues. Fats and oils are of animal and vegetable origin. Lard, butter, and suet are examples of animal fats. Olive oil and cotton-seed oil are examples of vegetable fats. An oil is a fat that is liquid at ordinary temperatures.

FRYING.

The difficulty of cooking food in fat without having it greasy makes frying an undesirable method of cooking. Frying is cooking in fat deep enough to cover the article to be cooked. For successful frying, the fat should be hot enough to form a crust at once on the article fried so that the fat will not soak into it.

TO TEST FAT FOR FRYING.

When it is hot enough to brown an inch cube of bread in 40 seconds it is hot enough for cooked mixtures, as croquettes, fish balls, etc. If bread browns in 60 seconds, it is hot enough for uncooked mixtures, as fritters, doughnuts, etc.

SAUTERING.

Cooking in a small quantity of fat. Have pan hot enough to hiss when fat is put in, and fat hot enough to hiss when food is put in. Cook food first on one side and then on the other. Use little fat to begin with, adding more from time to time to keep the food from burning.

RECIPES.

Broiled steak.—Wipe steak with damp cloth, remove outer skin and superfluous fat. Place in wire broiler greased with the fat removed. Hold close to glowing coals for from 8 to 10 seconds, and when one side is seared, turn and sear the other side in the same way. Raise the broiler a little from the heat and finish cooking, turning often. The length of time for broiling depends upon the thickness of the steak. Steak 1 inch thick will be rare in 8 min., medium in 10 min.; the thicker the steak the longer the time required to cook it. Serve as soon as cooked on warm platter, seasoning both sides with salt, pepper, and butter.

Fish balls.—One c. fish, 1 egg, $\frac{1}{8}$ tsp. pepper, $\frac{1}{2}$ tbsp. butter, 2 c. potatoes, $\frac{1}{2}$ tsp. salt. Pick fish into small pieces. Wash, pare, and cut potatoes into pieces small enough to measure. Cook fish and potatoes together in boiling water-enough to cover until potatoes are soft. Drain, shake, and mash until free from lumps. Add butter, pepper, salt, and egg well beaten. Beat with fork until light and creamy. Take up in spoonfuls, put in hot fat and fry until golden brown. Drain on brown paper. Salt fish may be used in this recipe, then not so much salt will be needed in seasoning.

Drawn-butter sauce.—One tbsp. butter, $\frac{1}{2}$ c. boiling water, 3 tbsp. flour, $\frac{1}{2}$ tsp. salt, $\frac{1}{4}$ tsp. pepper. Put the butter into the sauce pan and add flour,

salt, and pepper. Stir over fire until smooth, add water gradually, stirring until smooth. Cook 4 min. This sauce may be varied by adding lemon juice or hard-cooked egg chopped fine.

Mashed potatoes.—Cook as for plain boiled potatoes without skins. After draining and allowing steam to escape, squeeze through the potato ricer or mash with masher in the kettle in which they were boiled. When they are smooth and free from lumps, add to each pint of potato 1 tbsp. butter melted in 3 tbsp. scalded milk, ¼ tsp. salt, ⅛ tsp. pepper, and beat all together until light and creamy. Heap in warm dish.

Fried potatoes.—Wash and pare potatoes and cut in small pieces. Wash, drain, and dry in towels. Drop into hot fat and cook until brown. Drain on brown paper and sprinkle with salt.

German toast.—One egg, ½ tsp. salt, 1 slice stale bread, 2 tbsp. sugar, 1 c. milk. Beat eggs slightly, add salt, sugar, and milk. Put in shallow dish. Soak bread in this mixture until soft and cook on a hot well-greased griddle and serve.

BATTERS AND DOUGHS.

Quick bread mixtures are either batters or doughs. Dough means: "That which is moistened." Batter means: "That which is beaten."

A batter is a mixture of flour and liquid usually combined with other ingredients, as sugar, salt, eggs, and milk. A batter may be thin enough to pour or thick enough to keep its shape when dropped from a spoon. Doughs are mixed just stiff enough to handle, or so they may be rolled thin as a wafer.

Sponge is a batter to which yeast has been added.

One measure of flour to one of liquid makes a batter.

Two measures of flour to one of liquid gives a mixture stiff enough for muffins.

Three measures of flour to one of liquid makes a soft dough.

Four measures of flour to one of liquid makes a dough that may be rolled like cookies.

LEAVENING AGENTS.

Doughs are made light because they are in this way made more palatable and digestible. The principal means of making doughs light are:

(*a*) The introduction of air by beating or by the addition of eggs well beaten.

(*b*) The use of yeast.

(*c*) The chemical combination of soda with some acid substance.

Yeast is a plant that grows under the proper conditions of temperature and moisture. After the dough is made light, the life of the yeast must be destroyed by heat.

Yeast requires food, oxygen, warmth, and moisture. For food, it likes sugar. While feeding on the sugary substances a chemical change is brought about by which alcohol and carbon dioxide are formed. The gas puffs up the dough and we say we have raised bread.

Yeast plants grow best at a temperature of from 70° to 90° F.

RECIPES.

Yeast.—One c. mashed potatoes, 1 c. boiling potato water, 1 tbsp. dried hops, 2 tbsp. sugar, 1 tbsp. salt. Pour the boiling potato water over the hops. Cover and allow to steep 5 min. Mix the sugar and salt with the mashed potatoes. Strain the water from the hops over the potato mixture. Cover and stand in a place where the temperature will remain between 70° and 90° F. After two or three days the mixture will ferment and show bubbles. There will be also a strong yeasty smell. It is then ready to use in bread.

Bread.—To renew the yeast and keep a "start" from one baking to another, mix 1 c. boiled mashed potatoes, 1 tbsp. sugar, 1 tsp. salt, and 1 c. potato water. When this mixture is lukewarm put in your "start" of yeast and set it aside in a warm place to ferment. Fermentation will take place within two or three hours. When this shows bubbles, a portion may be taken out and kept in a covered jar to start the next baking. Add to the remainder of the yeast lukewarm

water, 1 tbsp. butter, and, little by little, flour enough to make a batter. One cupful of liquid will be needed for each loaf of bread. Beat this sponge very well so that all particles of the flour may be moistened and well mixed with the yeast. Put this in a warm place to rise. When it is light and foamy, beat in more flour, little by little, until it is so stiff that it can not be beaten with a spoon. Work it with the hands, adding more flour gradually until the dough is elastic and does not stick to the hands. Mold it into loaves. Put in greased pans and allow to rise until the loaves are at least double the size they were when they were put into the pans. Place in an oven which has been heated so that a piece of paper may be turned brown in it in five minutes. After the first ten minutes the heat may be somewhat lessened. The bread should bake one hour.

HINTS ON MIXING AND BAKING QUICK BREADS.

As a rule, sift the baking powder with flour.

A quick bread should be quickly mixed and put in the oven without delay.

Open and close the oven gently. Avoid moving the pan while the bread is rising. A draft of cold air will cause the bubbles to collapse. A sudden jar will break them. In either case the bread will fall.

Have everything measured and ready before mixing.

A common method of raising doughs and batters is based on the action of bicarbonate of soda and other acids by which carbonic-acid gas is set free. The acid contained in sour milk, when combined with soda and heated, sets free the gas. This puffs up the dough and makes it light. The secret of success consists, first, in perfect mixing, second, in rapid completion of the work after the two rising agencies have become wet and begun to work, and third, in no delay in baking when all is ready. One teaspoonful baking soda is required for 2 cups of sour milk.

If it is desired to use baking powder with sweet milk instead of soda and sour milk, use a quantity of baking powder two and one-half times the quantity of soda called for in the recipe.

Milk biscuits.—Four c. flour, 1⅔ c. milk, 2½ tsp. baking powder, 1 tsp. salt, 1 tbsp. butter. Add the baking powder and salt to the flour and sift twice. Rub in the butter. Have the oven very hot, and have the pans greased or floured before beginning the mixing. Add gradually the milk and mix quickly. Turn the dough on a floured board, knead lightly and quickly. Roll in a sheet half an inch thick. Cut with a small round cake-cutter and place in baking pan far enough apart so that they will not touch in baking. Brush with milk and bake in quick oven for 15 or 20 min.

Graham biscuits are made in the same way, using graham flour instead of white flour.

Muffins.—Beat 1 egg until light. Add 1 tbsp. sugar and 1 tbsp. melted butter. Beat well and add 1 c. milk, ½ tsp. salt, and 2 c. flour, to which has been added 4 tsp. baking powder. Mix quickly and pour into well-greased muffin tins. Bake in a rather quick oven for 25 min.

Corn muffins.—Scald 1 c. of milk. Stir in 1¼ c. corn meal until the meal thoroughly expands. Remove from fire and add ½ c. sugar and 1 tbsp. butter. Cool and add 1 c. milk, 2 well-beaten eggs, and ½ tbsp. salt. Mix well and add 1¼ c. white flour to which has been added 4 tsp. baking powder. Beat until smooth and turn into well-greased gem tins. Bake in moderate oven about 45 min. Corn meal should be thoroughly cooked. Baking may be continued until muffins draw away from sides of the tins.

Cookies.—Cream ½ c. butter and add 1 c. sugar; then 2 eggs well beaten, 1 tbsp. milk, ½ tsp. vanilla and 1 tsp. nutmeg. Mix and sift 2½ c. flour and 2 tsp. baking powder and add to first mixture. Then put mixture on well-floured board. Roll thin and cut with cutter. Place in greased pan and bake in moderate oven.

Griddle cakes.—Sift together 2 c. flour, ½ tsp. salt, 1 tsp. soda. Add 3 c. sour milk. Beat well. Add 1 well-beaten egg. Cook on hot well-greased griddle. Turn and brown on the other side.

Doughnuts.—One c. sugar, 1 c. sour milk, ½ tsp. salt, 2 tsp. baking powder, 2 eggs, 1 tsp. nutmeg or cinnamon, 1 tsp. melted butter, 1 tsp. soda, flour enough to handle on board (about 4 cups). Beat eggs and sugar together. Add sour milk and beat to a cream. Stir in flour, soda, salt, spices, and baking powder sifted together. Mix well. Roll out to about ¼ in. in thickness. Cut and fry in deep fat. Drain on brown paper.

Banana fritters.—Beat 2 eggs light and add 1 c. milk, ½ tsp. salt, and sufficient flour to make an ordinary batter. Cut 2 bananas into thin slices and stir into the batter. Have ready a deep pan of hot fat. Add 2 tsp. baking powder to the batter. Mix thoroughly and drop by spoonfuls into the hot fat. When brown on one side, turn and brown on the other. Take out with a skimmer and serve very hot. Do not pierce with a fork as it allows the steam to escape and makes the fritters heavy.

FRUITS.

Most fruits contain 80 or 90 per cent of water and considerable cellulose. They have almost no proteid or fat, and, when ripe, little or no starch. Ripening changes the starch into sugar. Sugar is the only food-stuff found in any quantity in fruit. Apples, cherries, pears, peaches, and oranges contain, on an average, about the same amount of sugar; lemons, currants, and cranberries, less sugar; bananas, grapes, and dried fruits, more sugar. We eat fruit for its delicious taste, refreshing, thirst-quenching juices, organic salts, and mineral matter. The mineral matter is essential to pure blood and sound tissues.

To prepare and serve fruit, it must be clean. Rinse small fruit quickly in cold water and drain at once. Wipe large fruit with damp cloth. It is better to cook fruit in earthenware or granite dishes. Fruit should be served cold. Arrange it tastefully, grouping colors harmoniously if several kinds are served in one dish.

Cooking fruit softens the cellulose and starch, if any, kills germs of disease and decay. Nearly all fruit loses some sweetness in cooking, and sugar should be added.

Stewing is a favorite method of cooking fruits. The amount of water varies in different fruits, so the amount of water in which they are to be cooked will vary also.

Bananas may be boiled or baked in their skins, or sliced and fried.

RECIPES—SALADS.

Salads must be cold. The greens in them must be crisp and clean. The dressing must be carefully prepared and proportioned. The whole must be well mixed and tastefully arranged.

Salads should be eaten because they are refreshing, and, if properly prepared, nutritious and wholesome. They may be made of left-over food and require on fuel and are therefore economical.

Catuay salad.—Four c. of the white petals of the flower. Cover with boiling water and boil until tender. When cool, garnish with onion, boiled eggs, and tomato, and cover with French dressing.

Potato salad.—Four c. potatoes, ¼ tsp. pepper, ½ tsp. salt, 2 small onions cut fine. Cut cold or freshly boiled potatoes in one-half inch cubes. Mix with onions, pepper and salt. Pour hot cooked dressing over potatoes and mix lightly with a fork. Allow to cool and arrange on a bed of lettuce leaves or pacó. Garnish with hard-cooked eggs.

Fruit salad.—A very good fruit salad may be made by taking about equal parts of bananas, pineapples, and lukbans, all cut into small pieces and to which blanched almonds have been added. Serve with mayonnaise.

Green mango sauce.—Pare green mangoes and cut into thin slices. Allow equal parts of mango and sugar. Put the fruit into a kettle. Cover with sugar and stand over a slow fire until the sugar melts. Then bring to the boiling point and boil continuously for 15 min. Allow to cool and then serve.

SALAD DRESSINGS.

Mayonnaise dressing.—Put the uncooked yolks of 2 eggs into a clean bowl. Add ½ tsp. salt and a speck of cayenne pepper. Work this well together and add, drop by drop, a cup or more of olive oil. Beat

constantly while adding the oil. After adding ½ c. oil, add a few drops of lemon juice or vinegar. The more oil the thicker the dressing. If too thick, add ½ tsp. vinegar. In case the dressing should curdle, begin anew with the yolks of 2 eggs in another bowl, and after stirring, add by teaspoonfuls the curdled mixture, beating all the time, and finish by adding more oil. A delicacy is given to the dressing if, just before serving, the well-beaten whites of the eggs are stirred into the dressing.

French dressing.—One-half tsp. salt, 1 tsp. pepper, 6 tbsp. olive oil, 1 tbsp. vinegar, garlic or onion to taste. Add the olive oil gradually to the salt and pepper, beating all the time. When the salt is dissolved add the vinegar. Beat well and pour over the salad. Worcestershire sauce or catsup may be added to suit the taste.

French dressing is especially liked over ripe vegetables and green leaves used as salad, as over ripe tomatoes and lettuce leaves.

Left-over meats may be cut into small pieces and mixed with left-over cooked vegetables in salads. If they are properly seasoned and proportioned, very palatable dishes may result.

MISCELLANEOUS RECIPES.

Little sponge cakes.—Two eggs, ½ c. flour, ½ c. sugar. Beat the whites and yolks separately until the yolks are thick and lemon-colored and the whites are dry and stiff. Mix the whites and yolks together and beat well. Add the sugar little by little, beating all the time. Add the flour in the same way. Put in gem tins that have been greased, and bake in quick oven.

Plain layer cake.—One and one-half c. sugar, ½ c. butter, 3 c. flour, 2 eggs, 2½ tsp. baking powder, 1 tsp. vanilla, 1 c. water. Beat the butter to a cream. Add gradually the sugar, then the yolks of the eggs. Beat until very light. Measure the water, beat the whites of the eggs and sift the baking powder and flour together. Add a little of the water and a little of the flour, and so continue until you have used all. Add the flavoring and stir in carefully the whites of the eggs. Bake in three layers.

All dried fruits must be soaked in clear water for some time before being cooked.

Marshmallow cake.—Two c. sugar, 1 c. milk, ¾ c. butter, 2½ c. flour, 6 eggs (whites), 1 tsp. baking powder, 1 tsp. vanilla. Beat the butter to a cream and add the sugar. Beat well. Add flour and milk a little at a time alternately. Put baking powder in with the last flour. Put in beaten eggs last.

Chocolate icing.—Put 4 squares of chocolate and ½ c. milk and 1 c. brown sugar over the fire. Boil and stir until the mixture will harden when dropped in cold water. Take from fire and add 1 tsp. vanilla. Use at once.

Pie crust for one pie with upper and lower crust.—One tbsp. butter, 1 tbsp. lard, 2 tbsp. cold water, ½ tsp. baking powder, ½ c. flour. Have the ingredients and dishes as cold as possible. Place butter and flour in bowl and work them together as quickly as possible. The baking powder must previously have been sifted with the flour. Add water gradually, mixing all the time. Take out on board and roll thin. Put in well-greased tin.

Lemon pie (two pies).—Juice and grated rind of 2 large lemons, 1½ c. sugar, 1 level tbsp. butter, ¾ c. boiling water. With sugar mix 5 level tbsp. cornstarch. Put the water, lemon rind, and butter with these and boil until stiff and clear. Pour this over the beaten egg yolk, stirring constantly and pouring slowly. Return it to the fire and cook the egg, stir in the lemon juice and turn into the crust. Have the filling ready before the crust is mixed. Use whites of eggs well beaten to cover the pie after it is cooked.

In preparing the whites of eggs for the top of the pie, use 2 tbsp. sugar to 1 egg white. Beat until when the beater is lifted through the beaten white, the latter will stand in points. Spread over the pie, put in the oven and brown a golden brown.

The sooner the pie is placed in the oven after the crust is begun to be mixed the better the pie.

Lemon pie requires only the lower crust.

Fruit pies require both an upper and lower crust.

Rice pudding.—Four c. milk, 3 tbsp. boiled rice, 1 tbsp. sugar, ½ c. raisins. Add the rice to the milk. Add the sugar and the raisins. If desired, use 1 tsp. nutmeg or cinnamon. Turn into a pudding dish and bake ½ hour.

Bread pudding.—Slice the bread and spread with butter. Cut into cubes ½ inch on a side. Make a custard, allowing 2 eggs to 2 cups of milk; sweeten to taste; pour over the mixture; turn into a baking dish and bake.

Cornstarch blanc mange.—Mix ¼ c. cornstarch and ¼ c. sugar; wet with ¼ c. cold milk. Stir this into 2 c. boiling milk, cook over fire for 1 min., stirring constantly until thickened. Then cook in double boiler 10 min. Add beaten yolks 3 eggs, and cook 2 min. Remove from fire. Add well beaten whites 2 eggs. Put into cups which have been wet in cold water.

St. James' pudding.—Melt 3 tbsp. butter, add ½ c. molasses, ½ c. milk, 1⅔ c. flour, ½ tsp. soda, ¼ tsp. salt, ¼ tsp. each cloves, allspice, nutmegs, sifted together. Turn into buttered molds and bake in oven. Serve with pudding sauce.

Pudding sauce.—Beat 1 egg until very light; add gradually 1 c. sugar. Beat thoroughly, and just before serving add 1 tbsp. hot milk.

Apple tapioca.—Soak ¾ c. tapioca for 1 hour in cold water after washing through three waters. Drain and add 2½ c. boiling water and ½ tsp. salt. Cook in double boiler until transparent. Put the apples from one can of apples into a buttered baking dish. Cover with ½ c. sugar. Pour this over the tapioca. Bake in moderate oven.

Sago may be used instead of tapioca, and peaches, pears, bananas, or other fruit instead of apples.

Boiled custard.—One pint milk, yolks 3 eggs, 6 tbsp. sugar, ⅛ tbsp. salt, ½ tsp. vanilla. Scald the milk in double boiler over hot water. Beat the yolks of eggs slightly, add the sugar and salt, stir constantly while adding the hot milk. Cook in double boiler, continue stirring until mixture thickens and a coating is formed on a metal spoon. Remove from heat at once. Allow to grow cold, and flavor. If cooked

long it will curdle. If curdled, place the dish containing the custard in a pan of cold water to prevent further cooking. Beat with an egg beater until smooth.

Delicate pudding.—Whites of 3 eggs, 3 c. milk or water, 2½ tbsp. cornstarch, ⅛ tsp. salt, 6 tbsp. sugar, 1 tsp. vanilla or 1 tbsp. lemon juice. Scald the milk (all but ½ c.) over hot water in a double boiler. Mix the cornstarch and sugar, then add the ½ c. cold milk. Place the upper boiler containing the milk over the flame. When milk reaches boiling point, pour in the cornstarch mixture and stir until thickened; replace the upper boiler over hot water and cook 20 min. Beat the whites of the eggs until light. Add the thickened milk and the flavoring and beat until smooth. Turn into a pudding dish or into molds previously wet with cold water. Allow to cool and serve with boiled custard.

FOOD FOR INVALIDS.

The preparation and serving of food is of especial importance in illness. Food for invalids should be perfectly cooked, attractively served, and all utensils should be perfectly clean.

Dishes should be heated if necessary, and the tray arranged before the food is prepared. The tray should be covered with the whitest napkin, the dishes should be the prettiest and daintiest that can be obtained, and they should shine with cleanliness. The tray should not be crowded, and the dishes should be so arranged that the person can eat with as much ease as possible. A flower or two, or even a few green leaves will add much to the attractiveness of the whole. A pleasing color or some beauty of arrangement will often tempt one to eat when otherwise the food would remain untouched.

The quantity of the food will vary according to the condition of the person, but, in general, it is better to serve a little, rather than too much, at one time.

In serving a single glass or cup use a small tray or a plate covered with a folded napkin. Cups and glasses should be filled only within an inch of the top to avoid spilling.

Food and drink should not be left in the room longer than necessary, and should be covered when possible. The tray or traces of a meal should be removed immediately after serving. In time of contagious diseases everything used—dishes, knives, forks, spoons, the napkins, tray, and so forth—should be sterilized by boiling in water for half an hour after using. Use nothing which can not be washed.

In time of serious illness the physician should be consulted and his directions followed *exactly*. Much unnecessary suffering and even death have resulted from giving articles of food which have been forbidden.

Dishes for invalids.—Poached eggs; toast, dry, milk, water; delicate pudding.

CANDIES.

Chocolate fudge.—Four squares chocolate, 2 c. sugar, 1 tsp. vanilla, 1 c. milk, 1 tbsp. butter. Put all except vanilla into sauce pan. Stir and cook until the mixture hardens when dropped into cold water. Take from stove. Add vanilla and beat until mixture begins to harden. Turn out quickly to cool. When cold enough cut into squares.

Mint tablets.—Two c. sugar, $\frac{2}{3}$ c. water, $\frac{1}{2}$ tsp. cream of tartar. Put all into saucepan and cook until it will form a soft ball when dropped into cold water. Take from fire, add three drops of oil of peppermint and stir rapidly until the mixture has a grayish appearance. Pour at once into a greased tin. Cut when cool.

DRINKS.

Lemonade may be made by using 1 lemon for each glass of water, which may be sweetened with 1 tbsp. sugar. Hot lemonade is recommended for colds.

Fruit punch.—Boil 4 c. water and 2 c. sugar and 2 c. chopped pineapple 20 min. Add 1 c. orange juice and $\frac{1}{2}$ c. lemon juice. Cool and strain. Add cold water to satisfy the taste.